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TAX PYRAMIDING AND TAX EXPORTING IN HAWAII: AN INPUT-OUTPUT ANALYSIS

Richard L. Bowen and PingSun Leung

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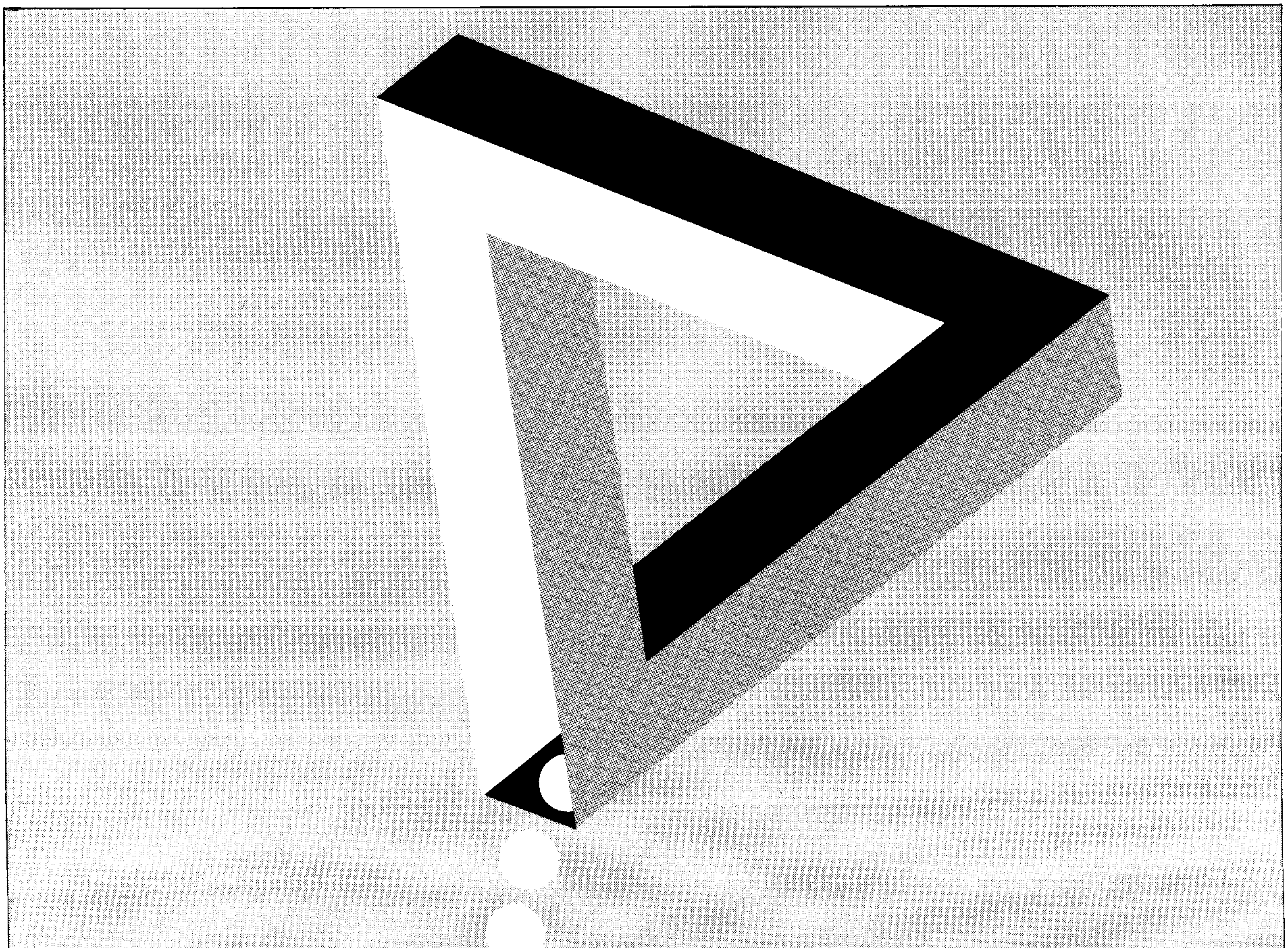

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THE AUTHORS

Richard L. Bowen is Associate Specialist in Community Resource Development, Department of Agricultural and Resource Economics, College of Tropical Agriculture and Human Resources, University of Hawaii.

PingSun Leung is Associate Researcher, Department of Agricultural and Resource Economics, College of Tropical Agriculture and Human Resources, University of Hawaii.

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ABSTRACT

An input-output model was used to estimate the degree of tax pyramiding and exporting in the state of Hawaii. Under the assumption that all taxes are fully forward shifted to final consumers, reasonable estimates are made of the amount of taxes paid by out-of-state consumers (tax exporting) and of the impact on prices of taxes levied on businesses at all stages of production (tax pyramiding). The study concludes that Hawaii's tax structure facilitates tax exporting and, *in general*, does not lead to excessive pyramiding on consumer prices. Estimates of tax exporting are reported for each major tax. An in-depth analysis of the pyramiding potential of the gross receipts tax showed that final services are taxed more heavily than commodities. The study shows that proposals to alleviate the pyramiding of the gross receipts tax may also lower the degree of tax exporting.

Keywords: tax exporting, tax pyramiding, input-output.

INTRODUCTION

Tax pyramiding occurs when a sales or gross receipts tax is imposed more than once on the value of a good or service at different levels in the marketing system. Pyramiding results in higher prices for consumers and can be discriminatory if goods or industries are effectively taxed at different rates. The research reported here measures the extent of pyramiding of Hawaii's gross receipts tax to discover its impact on prices and its discriminatory biases.

Tax exporting is the shifting of taxes to persons and entities residing in other jurisdictions. It is politically attractive in export-oriented economies because it produces a lower tax burden on the resident population. The research reported here estimates how state and local tax burdens (with the exception of the state income tax) are distributed between Hawaii residents and out-of-state residents.

This study evaluates, through the use of the state input-output model, the pyramiding of the gross receipts tax and the exporting of Hawaii business-related taxes. Bahl and Shellhammer's (1969) analytical framework was refined for this purpose. Improved methods of matching legal tax burdens with input-output sectors were devised. Procedures were then developed for forming tax multipliers given a multiple-stage, multiple-rate tax structure. The multipliers are used to estimate both tax pyramiding and tax exporting. Lastly, the study demonstrates that input-output analysis can be extended to explore differential impacts across commodities and across industries, with resulting insights into the discriminatory biases of the tax.

Assumptions about shifting are necessary to estimate tax burdens empirically at the final resting place. For an extensive literature review on this subject, see Phares (1980). There is substantial agreement on the shifting of many taxes, but disagreement still exists over the shifting, for example, of corporate income taxes and property taxes. Thus two scenarios were investigated: full forward shifting of all taxes, and full or partial shifting by type of tax or by industry upon which a tax is imposed. Results under the assumption of full forward shifting are presented in this report.

THE TAX MODEL

The tax model developed by Bahl and Shellhammer (1969) uses a state input-output (I-O) model and requires the derivation of a tax matrix. The coefficients of this matrix are the product of the vector of payments to state and local government per dollar of output in each industry and the matrix of direct and indirect requirements per dollar of delivery to final demand. These tax–final demand coefficients measure the amount of tax embodied in a dollar's worth of delivery to final demand.

The Hawaii state I-O model does not contain a vector of tax payments per dollar of output, having only three final payment sectors: household income, imports, and other value added. This latter row, which is estimated as a residual, includes tax payments. Strictly speaking, regional I-O models simulated from the national model, such as that for Hawaii, do not separate out tax information. Transactions are valued at producers' prices, which include federal, state, and local excise taxes. Corporate income taxes are not explicitly represented in the models; only indirect business taxes are estimated in the national model.

Because the general excise tax (G.E.T.) rates vary by selling industry, the analysis traces the flow of goods and services through the various industries. However, the I-O tables do not trace the actual flows of commodities through the trade sectors. Instead, commodity flows are shown as if they go directly from producers to users. Thus the output of the trade sectors is measured by gross margins (operating expenses plus profit). Since a considerable portion of Hawaii state taxes are levied on gross sales at retail and wholesale levels, it is necessary to make significant adjustments to the I-O model to trace these taxes. Given these model limitations, the procedures used by Bahl and Shellhammer must be modified to analyze Hawaii taxes.

Because existing tax categories were more aggregated than I-O sectors, taxes were allocated to producing sectors as follows. Retail-level G.E.T. payments for each final goods and services category were estimated and subtracted from total tax revenue. The difference, which is the estimated tax payments on nonfinal transactions, was allocated among industry sectors on the basis of industry sales. Allocation of other taxes to I-O sectors where tax categories were incongruous with I-O sectors was based either on sales or on asset values of the sectors.

I-O models generally treat capital goods as final. However, since taxes on capital were assumed to be shifted forward, the capital goods sector needed to be made an internal sector, i.e., endogenized, in the tax model. Since most capital goods are financed with borrowed funds, it can be assumed that a tax on capital is also financed, and that changes in prices of goods and services produced with that capital will occur over the loan repayment period rather than in the year the tax is imposed (Pollock, 1972). In this study, taxes on capital were estimated on a deferred basis, using standard long-term capital financing terms.

Intermediate excise taxes, expressed as tax per dollar of output, were reallocated from producing sectors to final demand sectors via the I-O model. This created a vector of indirect taxes embedded per dollar of final demand by industry sector. The property tax, business income tax, and fuel tax were treated in a similar way. For a more detailed description of the required allocations and procedures, see Bowen and Leung (1984) and Leung and Bowen (1988).

Given the matrix of indirect taxes per dollar of final demand by industry (Table 1), the direct taxes paid on final goods and services by final demand categories, and the appropriate shifting assumptions by sector, the degree of tax pyramiding and exporting can be readily estimated. Indirect taxes embodied in each final demand category, assuming taxes are fully shifted forward at all stages of transactions, were estimated by simply multiplying the coefficients in Table 1 by the vector of final demand for each category. These indirect taxes per dollar of final demand provide a measure of overall pyramiding effect by final demand category. The degree of exporting was measured simply by aggregating for each the total direct and indirect taxes associated with the export-related final demand categories. The export-related categories include tourist expenditures, exports, and defense and nondefense federal government expenditures.

ASSUMPTIONS

There are critical standard assumptions that must be made when using I-O analysis:

1. All of the enterprises grouped together are assumed to have similar proportions of input factors. Each sector has a single primary output, i.e., there are no joint products.

2. The proportion of sales dollar spent upon each good or service used in production of a particular output will remain the same for higher or lower output. The coefficients of production are assumed to be fixed, allowing for no substitution among inputs.

3. Purchasing patterns change slowly over time, with the technical relationships and trade patterns based on recorded transactions. Historically, changes in technology, relative prices, and regional import patterns occur slowly. This allows the same model to be used over a period of years.

The analysis reported here was performed under the assumption of full forward shifting of all taxes. This occurs under either perfectly inelastic demand or perfectly elastic supply. Inelastic demand was assumed for the analysis of proposed policy changes.

COMPOSITION OF TAXES ANALYZED

Figure 1 contrasts the relative sizes of the taxes considered in this study. The general excise tax (G.E.T.) was the single most important tax considered in this analysis, accounting for over half of the total (56.8 percent). Property taxes were next in size (22.5 percent). Almost half of all property tax revenue came from residential housing. "In lieu of" (I.L.O.) taxes

Table 1. Indirect tax per dollar of final demand by industry sectors

Industry	General excise	In lieu of	Real property	Corporate profit	Fuel	Total
1 Sugar, field	0.01021	0.00221	0.00711	0.00298	0.00105	0.02356
2 Pineapple, field	0.00833	0.00059	0.00479	0.00244	0.00083	0.01698
3 Other agriculture	0.01006	0.00070	0.00935	0.00369	0.00156	0.02536
4 Sugar processing	0.01260	0.00201	0.02122	0.00418	0.00205	0.04206
5 Pineapple canning	0.01492	0.00131	0.01804	0.00595	0.00249	0.04271
6 Other food processing	0.01496	0.00134	0.01868	0.00607	0.00255	0.04360
7 Misc. manufacturing	0.00867	0.00122	0.00724	0.00263	0.00170	0.02146
8 Construction	0.02263	0.00083	0.00816	0.00590	0.00209	0.03961
9 Trans. and warehousing	0.01174	0.00146	0.00831	0.00355	0.00301	0.02807
10 Communication	0.00852	0.00145	0.00780	0.00195	0.00070	0.02042
11 Elec., gas, sanitary	0.00981	0.00563	0.00714	0.00302	0.00124	0.02684
12 Wholesale trade	0.01586	0.00190	0.01253	0.00383	0.00152	0.03564
13 Retail trade	0.01126	0.00257	0.01072	0.00265	0.00086	0.02806
14 Eating and drinking	0.01328	0.00195	0.01208	0.00439	0.00165	0.03336
15 Banking and finance	0.01728	0.00238	0.01981	0.00416	0.00135	0.04498
16 Hotels	0.02085	0.00460	0.02075	0.00524	0.00263	0.05407
17 Health, prof. services	0.01436	0.00195	0.01374	0.00364	0.00131	0.03500
18 Other services	0.01648	0.00195	0.01312	0.00402	0.00147	0.03704
19 Govt. enterprises	0.00907	0.00194	0.00655	0.00271	0.00234	0.02261
20 Other industries	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
21 Imports	0.00500	0.00000	0.00000	0.00000	0.00000	0.00000

were mostly in lieu of general excise taxes and, to a lesser extent, in lieu of property and corporation income taxes. These taxes accounted for 8.3 percent of the taxes analyzed in this study. Business income taxes, which also included taxes on business income reported on personal income tax forms, were a relatively small portion (4.9 percent) of the total taxes directly affecting businesses in Hawaii. For example, more fuel taxes (5.5 percent) were collected than business income taxes.

Personal income taxes, except as noted above, were not considered. This tax is not subject to shifting through industry sales and is further complicated by the federal income tax offset.

EXAMPLE OF USE OF AN INPUT-OUTPUT MODEL TO ANALYZE TAX PYRAMIDING AND EXPORTING

The following example illustrates how the I-O model can be used to estimate tax pyramiding and tax exporting. Table 2 shows the transactions required to deliver $1000 worth of milk products to the final consumers in a hypothetical economy. Although grossly simplified from the actual transactions that would take place in the Hawaii economy, the example yields insight into the estimation process and interpretation of the tax pyramiding and exporting estimates generated by the I-O model.

The hypothetical example shows the following interindustry transactions: (1) final consumers purchase $1000 worth of milk products from retail outlets, with $800 worth purchased by residents and $200 worth purchased by tourists; (2) retailers purchase $600 worth of milk from milk processers; and (3) milk processors purchase $400 worth of unprocessed milk from dairy farms. Table 2 shows the factor payments by each of the three sectors (retail, milk processing, and dairy farms) of the economy. For the dairy farm sector, these are $300 to labor, $2 of taxes, and $98 of other value added. Other value added includes profits, depreciation, and payments to management and capital. Factor payments by the milk processing and retail sectors can be interpreted in a similar fashion. It should be noted that for each sector total inputs equal total ouputs, i.e., the sum of each column is the same as the sum of its corresponding row.

Conventional I-O analysis starts with the calculation of the direct and indirect requirements per $1 delivery to final demand, commonly known as the "final demand multipliers." Table 3 shows the direct and

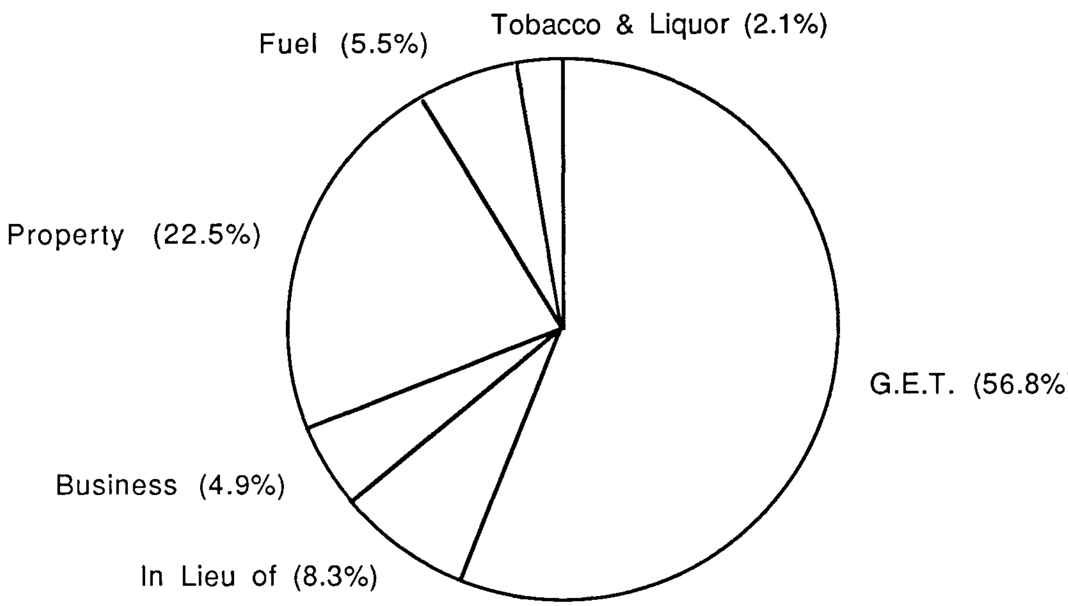

Figure 1. Taxes collected by tax category, FY 1981.

G.E.T.	$527,971
I.L.O.	71,225
Business	47,411
Property	211,858
Fuel	53,389
Tobacco & liquor	25,700
Total business taxes	$937,554

Table 2. Hypothetical transactions attributable to the delivery of $1000 worth of milk product to final consumers (in dollars)

Selling industries	Purchasing industries: Dairy farm	Milk processing	Retail	Final consumers: Local	Tourist	Total output
Dairy farm	0	400	0	0	0	400
Milk processing	0	0	600	0	0	600
Retail	0	0	0	800	200	1000
Labor	300	100	300			700
Tax	2	3	40			45
Other value added	98	97	60			255
Total outlays	400	600	1000	800	200	3000

Table 3. Direct and indirect requirements per $1 delivery of milk product to final consumers by the retail sector (in dollars)

Producing industry		
1. Dairy farm	400/1000	= 0.40
2. Milk processing	600/1000	= 0.60
3. Retail	1000/1000	= 1.00
TOTAL	2000/1000	= 2.00 ← Final demand multiplier

Source: Table 2

Table 4. Tax payments per $1 of output (in dollars)

Tax-paying industry		
1. Dairy farm	2/100	= 0.005
2. Milk processing	3/600	= 0.005
3. Retail	40/1000	= 0.040

Source: Table 2

indirect requirements per $1 of milk products sold through the retail sector. As indicated in Table 2, in order to deliver $1000 worth of milk products to the final consumers, milk processors would have to purchase $400 worth of unprocessed milk from the dairy farms. This means that dairy farms would have to increase their production by $400, or 40 cents for each dollar of milk sold to final consumers. Similarly, the milk processors and retailers would have to increase their production by $600 and $1000 respectively, or 60 cents and $1 for each $1 of milk products sold to final consumers. The resulting $2000 in total sales in the economy produced by $1000 in final milk sales indicates a final demand multiplier of 2.0.

Table 2 also shows the tax payments made by each sector. These can be converted to tax payments per $1 of output by dividing sector tax payments by sector output, as shown in Table 4. The product of the direct and indirect requirements coefficients (Table 3) and the tax per dollar of output (Table 4) tells us the direct and indirect taxes attributable to $1 of milk product delivered to final demand (Table 5).

Table 5 summarizes the I-O estimates of tax pyramiding. The total tax paid per $1 of milk sold to final consumers is 4.5 cents. The 4 cents of tax generated through the retail sector is a direct tax on final consumption. Indirect taxes amounting to 0.5 cent are generated in the milk processing and dairy farm sectors. Full forward shifting of taxes means that the final consumer will end up paying for both direct and indirect taxes, regardless of the stage at which a tax is imposed or who is legally responsible for collecting the tax. The I-O model in this hypothetical example estimates that tax pyramiding adds an additional 0.5 percent to the direct tax rate of 4 percent.

Table 6 shows how the I-O model measures tax exporting, assuming that taxes are fully forward shifted. Applying the 4.5 percent direct and indirect tax rate to final sales of milk products, $36 of tax can be attributed to local consumers and $9 to tourists. Therefore, 20 percent of the tax has been exported.

This example demonstrates the essence of I-O analysis in estimating tax pyramiding and tax exporting. It also defines the terms (direct and indirect taxes, tax exporting, tax pyramiding) used throughout the report.

Table 5. Direct and indirect tax attributable to $1 delivery of milk product to final consumers by the retail sector (in dollars)

Tax-paying industry						
1. Dairy farm	0.005	×	0.40	=	0.002
2. Milk processing	0.005	×	0.60	=	0.003
3. Retail	0.040	×	1.00	=	0.040
TOTAL			2.00	=	0.045

Source: Tables 3 and 4

Table 6. Degree of tax exporting

Final consumers	Amount	Direct & indirect tax	% of total
Local	$ 800	$36	80
Tourists	200	9	20
TOTAL	1000	45	100

Source: Tables 2 and 5

ANALYTIC RESULTS UNDER FULL FORWARD SHIFTING

Pyramiding of the General Excise Tax

A characteristic of the G.E.T. is that it pyramids by sucessive taxation at each stage of production and sales. Hawaii is able to derive a high level of tax revenue from the G.E.T. because a very broad base of expenditure is subject to direct or indirect taxation. Virtually every final sale generates tax revenue; even sales to exempt organizations embody taxes incurred at earlier stages of production or distribution. Although effective excise tax rates of up to 12 percent have been claimed, the I-O analysis reported here shows that, in the aggregate, pyramiding is much less.

Estimates of pyramiding depend upon the definition of the direct tax base. That base could be the 4 percent final retail-level tax or slightly less than 4.5 percent, which would also include the 0.5 percent tax levied on all imported items for resale. The tax on goods and services purchased by Hawaii residents is an estimated 5.3 cents per dollar of final sales (Figure 2). Using the 4 percent base, pyramiding adds 32 percent to the average price of final goods and services. With the higher base of 4.4 percent, pyramiding adds 20 percent to final prices. Depending on which base one uses to measure pyramiding, taxes generated *indirectly* from final sales amount to only 20 to 32 percent of direct taxes.

The G.E.T. appears to pyramid slightly more on tourist expenditure than on resident expenditure because tourists spend a higher proportion for rental housing and for services. The G.E.T. pyramids more on rental property than on most other goods and services. A 4 percent tax is levied on the value of construction and other forms of investment. This is considered to be indirect tax revenue in this analysis; it is levied on businesses and assumed to be shifted forward to consumers. Renters (tourists and local renters) are subject to a further 4 percent general excise tax on their rent.

The service-intensive nature of tourism could also account for slightly higher pyramiding. Hotels and entertainment enterprises tend to purchase intermediate services. Since all services, intermediate or final, are taxed at the 4 percent retail rate, the greater degree to which intermediate services are embodied in a final sale, the greater the effective tax rate.

Caution is urged in drawing inferences from these results. First, the difference in effective tax rates is not great: 5.3 versus 5.4 percent. Second, estimation errors could account for some of the difference. And third, tourists require different government services than residents, making it difficult to determine whether tourists pay their fair share of taxes. Furthermore, a higher effective tax rate on tourists increases tax exporting.

Taxes on exports (also Figure 2) are mostly attributable to indirect taxes. Commodity exports are subject to a 0.5 percent intermediate tax. Exports (and imports) of services are taxed if the work was performed in Hawaii. The effective indirect tax rate on exports is one-third less than the effective indirect tax rate on personal consumption expenditures (P.C.E.).

Interpretation of the model relative to tax pyramiding must recognize that a sizeable portion of final goods and services is exempt from the retail tax. Those include sales to the federal government, duty-free purchases by tourists, and final sales by local nonprofit organizations. This study estimates pyramiding

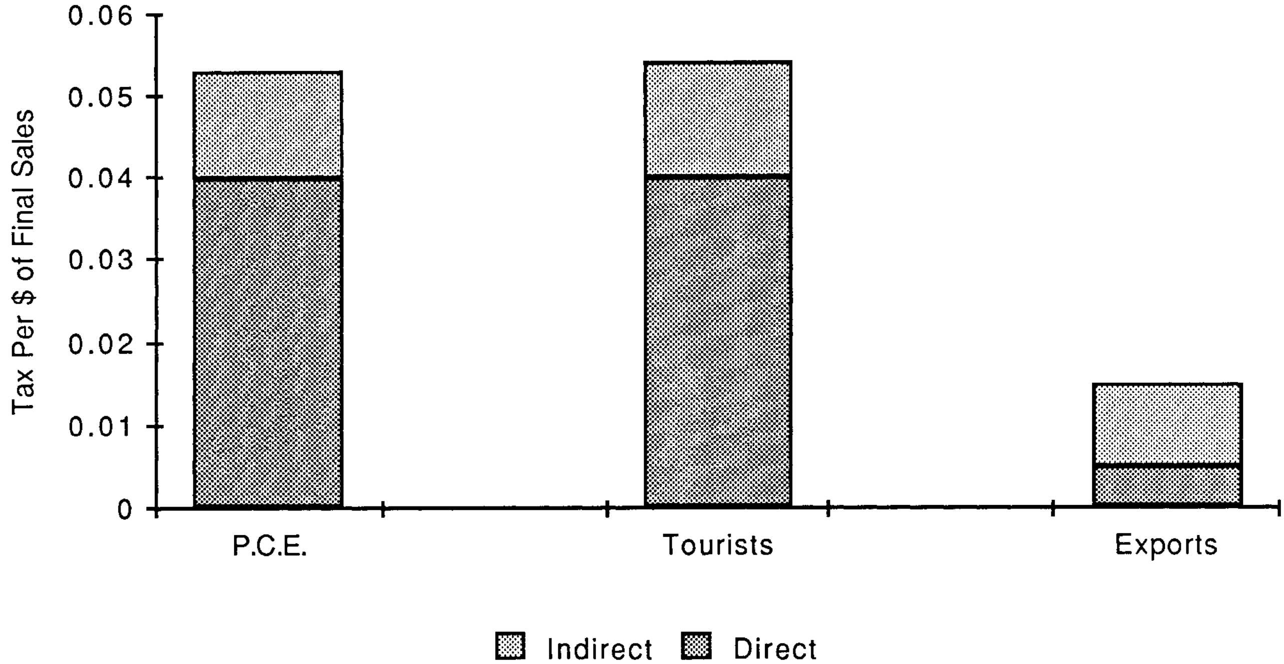

Figure 2. Tax pyramiding of the general excise tax by final demand category.

	Direct	Indirect	Total
Personal consumption expenditure (P.C.E.)	4.0	1.3	5.3
Tourists	4.0	1.4	5.4
Exports	0.5	1.0	1.5

only on *final* sales to tourists and for local personal consumption subject to the 4 percent retail rate.

Exporting of Business-related Taxes

A summary of taxes exported by type of tax is shown in Figure 3. The highest degree of exporting occurs with business income taxes (42 percent), followed by the liquor tax (40 percent). The lowest degree of exporting is the tobacco tax (9 percent). Most of the others fall between 31 and 34 percent with "in lieu of" taxes slightly lower than this range at 26 percent. The overall level of tax exporting of the taxes considered in this analysis was an estimated 32 percent.

Considering only the tax revenue exported (shaded region in Figure 4), tourists account for two-thirds, exports one-fourth, and the federal government one-twelfth of exported tax revenue.

The structure of the G.E.T. facilitates tax exporting. In total, one-third of the G.E.T. is exported under the assumption of full forward shifting. Tourists account for only 17 percent of total final sales in Hawaii but were estimated to pay 25 percent of the G.E.T. Although the tax per dollar of sales is roughly the same for tourists and for residents, there are fewer exempt sales to tourists. Only sales at the airport duty-free store escape direct taxation, and these are for commodities to be consumed outside of Hawaii.

Exports of goods and services accounted for only 5.5 percent of gross excise tax revenue. The federal government accounted for only 2.3 percent. This portion was all indirect tax revenue since the federal government is exempt from direct taxation. Personal purchases by servicemen and other federal employees were included in personal consumption expenditure.

ANALYSIS OF EFFICIENCY ISSUES

In general, it was found that tax pyramiding increased the G.E.T. effective tax rate by 35 percent. Net pyramiding due to intermediate-level business transactions accounts for 1.4 cents to each dollar of cost of goods and services purchased by final consumers, while the direct G.E.T. accounts for 4 percent.

Since we are dealing with an average rate of pyramiding, some goods and services would have a higher tax rate, others a lower tax rate. The high degree of aggregation in the I-O model masks the variance that occurs within groups of goods and services. While the model provided basic results on an industry basis rather than on a commodity basis, extensions of these basic results can provide more information; but reliability declines with efforts to achieve more disaggregated results.

To gain a better understanding of how different classes of goods and services are affected by tax pyramiding, six categories of consumer expenditure were analyzed by extending the basic I-O results. Four of these more refined expenditure categories were goods and two were services. Results are illustrated in Figure 5.

Pyramiding was homogeneous across the commodity groups of food, clothing, furniture, and drugs. The estimated low degree of pyramiding led the authors to conclude that efficiency concerns are minor for most *goods.*

Pyramiding was higher in the service industries, primarily because most services, intermediate as well as final, are taxed at the 4 percent retail rate. Service industries also tend to purchase from other service industries. The state I-O model indicated that in the commodity industries of sugar, fresh and canned pineapple, other food processing, and miscellaneous manufacturing, the purchases of intermediate services amounted to only 1 to 5 percent of sales value. In the service industries of banking and finance, hotels, health and professional services, and other services, purchases of intermediate services amounted to 11 to 18 percent of final sales value. The hotel sector had the highest propensity to purchase intermediate services, at 18.2 percent.

Higher pyramiding would be hypothesized to occur in capital-intensive industries. According to Hawaii tax law, intermediate purchases that are not physically incorporated into the goods and services produced are subject to the "final" tax rate of 4 percent. Thus, business capital investment expenditures for new buildings and equipment are taxed at the 4 percent rate. The hotel sector was estimated to have the highest direct and indirect tax rate because, as an industry, it is capital intensive and purchases a high degree of intermediate services.

ANALYSIS OF ALTERNATIVE TAX POLICIES

Given these general results related to tax pyramiding and exporting, the following policy issues were addressed, assuming the same level of total tax revenue:

1. Replacement of the gross receipts tax with a retail sales tax. A retail tax rate of 6.9 percent would be required even with a broadly defined retail tax base. Common exemptions for different types of services, food, and drugs would require a significantly increased base rate. Tax exporting would be lower (29 percent) under a broad-based retail sales tax than under the present gross receipts tax (33 percent).

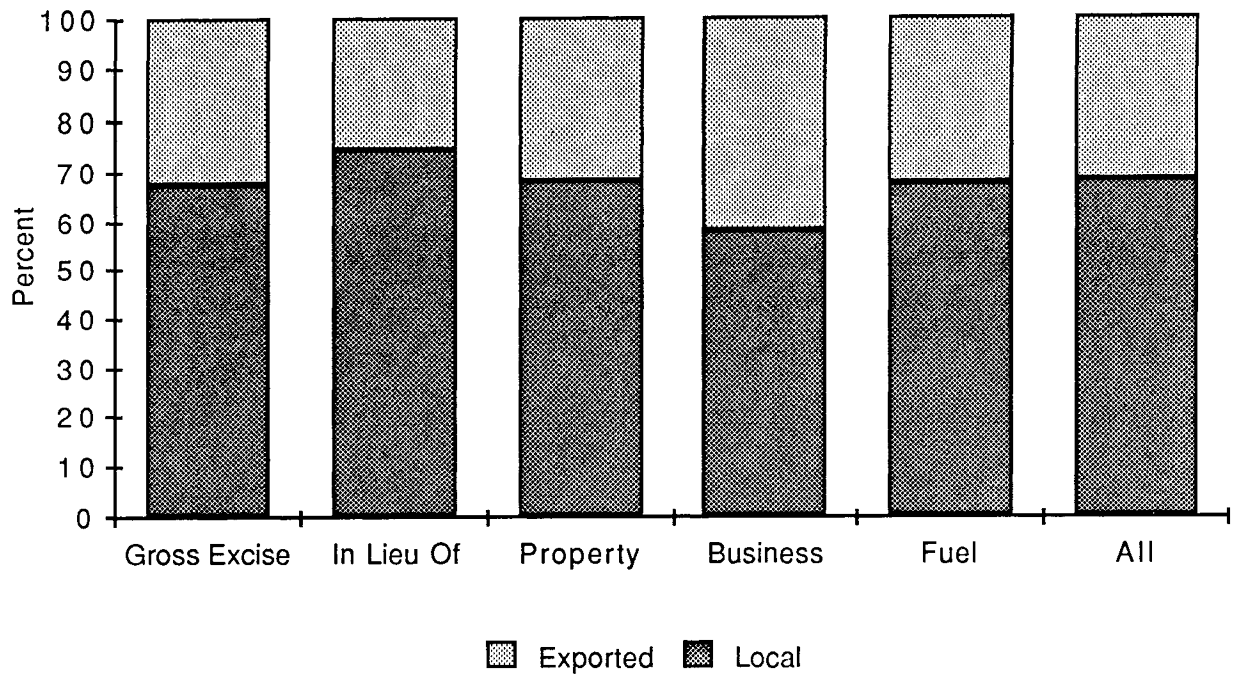

Figure 3. Taxes generated by selected categories, percentage local vs. percentage exported.

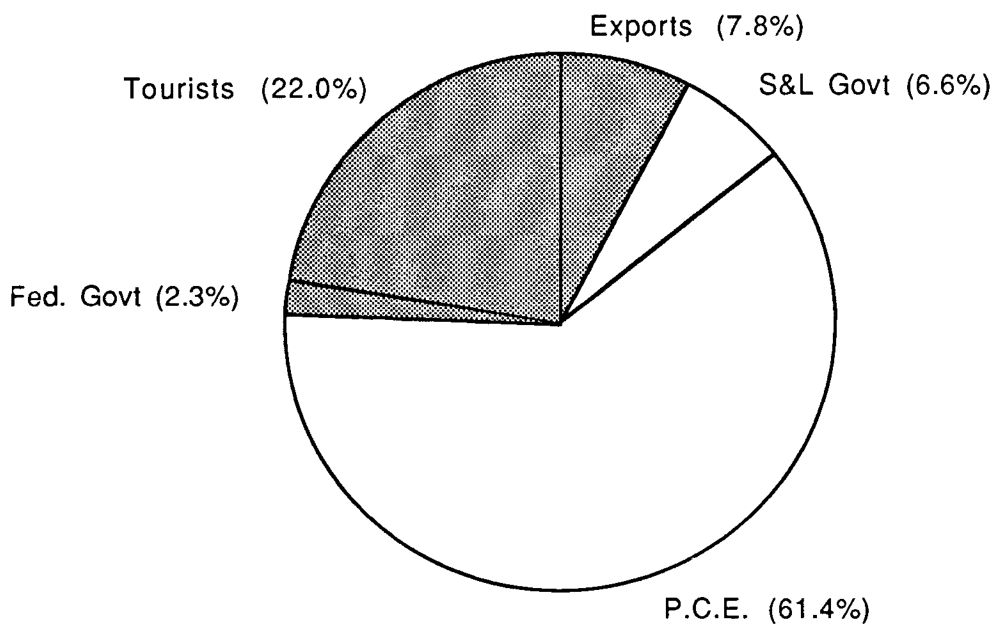

Figure 4. Percentage of taxes generated by final demand category, all taxes.

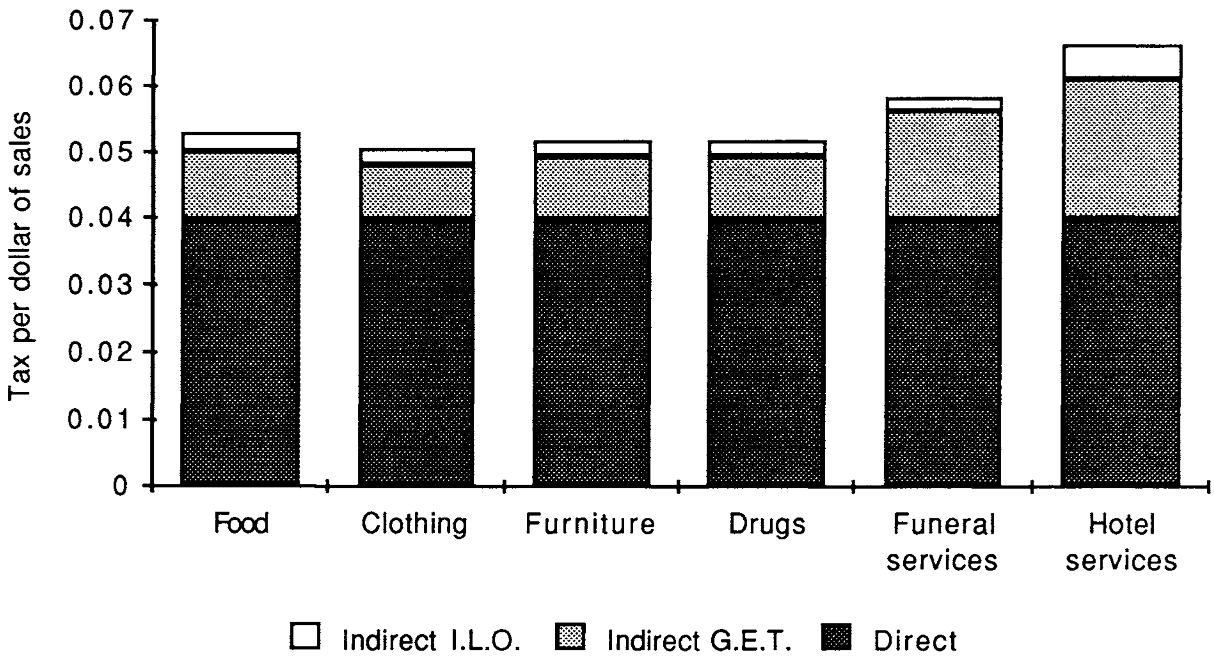

Figure 5. Direct and indirect taxes generated by sales of selected goods and services.

	Direct	Indirect G.E.T.	Indirect I.L.O.	Total
Food	0.040	0.010	0.001	0.051
Clothing	0.040	0.008	0.001	0.049
Furniture	0.040	0.009	0.001	0.050
Drugs	0.040	0.009	0.001	0.050
Funeral services	0.040	0.016	0.002	0.058
Hotel services	0.040	0.021	0.005	0.066

2. Replacement of the gross receipts tax with a combination 0.5 percent gross receipts tax and a retail sales tax. The retail sales tax rate would have to be 5.6 percent. Pyramiding of the 0.5 percent gross receipts tax would add an additional 0.3 percent. The effective average tax rate would be 6.4 percent for most goods and services. The tax export level was estimated to be 30 percent versus the present 33 percent export rate.

3. Replacement of the corporate income tax with an increased general excise tax. This policy would have little impact on prices and would necessitate increasing the present G.E.T. rates of 4 percent, 0.5 percent, and 0.15 percent to 4.36 percent, 0.545 percent, and 0.164 percent respectively. Tax exporting would decrease since a tax with a higher export rate (42 percent) would be replaced by a tax with a lower export rate (33 percent).

4. Exemption of food and drugs from the present general excise tax. The lost revenue from this exemption would be almost the same as that generated by the corporate income tax (approximately $40 million). Therefore, the tax rates estimated in the preceding policy analysis are also appropriate for this policy. Taxes exported, unlike the above case, would increase because the tax burden on residents would decrease relative to that on nonresidents.

SUMMARY

This study used the state I-O model to evaluate the pyramiding of the gross receipts tax and the exporting of Hawaii business taxes. Given assumptions about tax shifting, the model can estimate how taxes imposed at various stages of production affect final consumers.

Pyramiding of the gross receipts tax was estimated to account for 1.3 percent of the average sales price of goods and services purchased by Hawaii residents. This was in addition to the direct tax of 4 percent levied on sales to final consumers (although technically the tax is levied on the firm, not the consumer). Thus, the total effective tax on most goods and services purchased by residents was 5.3 percent. Visitors were estimated to pay a slightly higher average tax of 5.4 cents per dollar of final sales.

General excise taxes pyramid more on services than on commodities because all services are taxed at the 4 percent rate, whereas commodities are taxed at either the 0.5 percent or 4 percent rate, depending on the nature of the good. The highest service group was hotel services, with an effective tax of 6.6 cents per dollar of sales.

The broad base of the gross receipts tax allows for a significantly lower direct tax rate than a retail sales tax. This study estimated that a retail sales tax would require at least a 7 percent tax rate, which could be accomplished by defining the retail base more broadly than is commonly done.

Hawaii achieves favorable rates of tax exporting under the assumptions of this analysis. About a third of gross receipts, fuel, and property taxes are estimated to be paid by nonresidents. Business income and liquor taxes have higher export rates while "in lieu of" and tobacco taxes have lower export rates. Replacement of the gross receipts tax with a retail sales tax will lower tax exporting. The gross receipts tax is an effective means of taxing sales to the federal government, which cannot be accomplished with a retail sales tax. Special taxes that target tourists, such as hotel and entertainment taxes (see Fujii et al., 1984, for an analysis of tourist taxes), are further vehicles for tax exporting.

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Hawaii Agricultural Experiment Station
HITAHR, College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa
Noel P. Kefford, Director and Dean

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